What is claimed is:

1. A particle beam system comprising:

a particle source for emitting particles along a beam path;

an objective lens defining a diffraction plane and being mounted on said beam path downstream of said particle source;

a mirror corrector unit including an electrostatic mirror disposed on said beam path between said particle source and said objective lens;

said mirror corrector further including a magnetic beam deflector disposed on said beam path so as to be disposed between said particle source and said electrostatic mirror and between said electrostatic mirror and said objective lens; and,

said magnetic beam deflector being free of dispersion for each single passthrough of said particles and said magnetic beam deflector including a plurality of quadrupoles which are so determined that on the entire course of said beam path between a first-time exit from said magnetic beam deflector and said objective lens, a maximum of two planes occur conjugated to said diffraction plane of said objective lens.

2. The particle beam system of claim 1, wherein said electrostatic mirror defines a mirror plane; and, said diffraction plane of said objective lens is imaged into said mirror plane.

3. The particle beam system of claim 1, wherein said beam deflector includes at least three outer magnetic sectors and at least two inner magnetic sectors; between said particle source

and said electrostatic mirror, two of said outer magnetic sectors and one of said inner magnetic sectors lying between said two outer magnetic sectors are passed through by said particles; and, between said electrostatic mirror and said objective lens, two of said outer magnetic sectors and one of said inner magnetic sectors lying between said last-mentioned two outer magnetic sectors are passed through by said particles.

4. The particle beam system of claim 3, wherein the magnetic field in said inner magnetic sectors is anti-parallel to the magnetic field direction in said outer magnetic sectors.

5. The particle beam system of claim 4, wherein said beam deflector is purely magnetic.

6. The particle beam system of claim 1, wherein said beam deflector effects a deflection symmetrical to a first symmetry plane in a first region thereof and a deflection symmetrical to a second symmetry plane in a second region thereof.

7. The particle beam system of claim 3, wherein said beam deflector has free drift distances in magnetic field free spaces between said outer and inner magnetic sectors.

8. The particle beam system of claim 3, wherein said outer magnetic sectors have inlet and outlet edges facing toward said inner magnetic sectors; and, said inlet and outlet edges are inclined to the optical axis of the particle beam.

9. The particle beam system of claim 3, wherein the deflection

angles in each of said magnetic sectors are so selected that a vanishing dispersion occurs after a single passthrough through said beam deflector.

10. The particle beam system of claim 3, wherein the magnetic fields of all of said magnetic sectors are equal in magnitude.

11. The particle beam system of claim 6, wherein said particles, which enter said magnetic beam deflector approximately parallel to the optical axis, are stigmatically focused in each of said symmetry planes.

12. The particle beam system of claim 1, further comprising one of the following mounted between said magnetic beam deflector and said objective lens: one or two magnetic or electrostatic octupoles and, multipole elements of higher order.

13. The particle beam system of claim 1, further comprising a stigmator mounted between said particle source and said magnetic beam deflector.

14. The particle beam system of claim 1, further comprising a field lens between said particle source and said magnetic beam deflector.

15. The particle beam system of claim 1, further comprising a field lens between said magnetic beam deflector and said objective lens.

16. The particle beam system of claim 1, further comprising a

first field lens between said particle source and said magnetic beam deflector and a second field lens between said magnetic beam deflector and said objective lens.

17. The particle beam system of claim 14, wherein said field lens is an immersion lens with which the kinetic energy of the particles is increased before entering into said magnetic beam deflector.

18. The particle beam system of claim 15, wherein said field lens is an immersion lens with which the kinetic energy of the particles is reduced after exiting from said magnetic beam deflector.

19. The particle beam system of claim 3, wherein said objective lens defines an exit end optical axis; one of said magnetic sectors is closer to said objective lens than the remaining ones of said magnetic sectors and said one magnetic sector has a side facing away from said objective lens; and, wherein said system further includes a particle detector disposed on said side of said one magnetic sector and on opposite lying sides of said exit end optical axis relative to said electrostatic mirror; and, said one magnetic sector effecting a separation of collected particles exiting from a specimen from the primary particles.